

CLAIMS

What is claimed is:

1. A method for manipulating placement of pulsed laser across a target to ablate the target and deposit target material on a substrate, the method comprising:
 - 5 a) providing a laser, a rotatable platform, and a substrate;
 - b) placing a target on the rotatable platform;
 - c) scanning a pulsed laser beam from the laser across the target in an x/y scan pattern with the rotational position of the target fixed to generate plumes of target material that are deposited on the substrate;
 - 10 d) rotating the target by an incremental angle; and
 - e) repeating steps (c) and (d) in alternating sequence a plurality of times.
2. The method of claim 1, wherein the incremental rotations of the target occur only after a complete or substantially complete scan of the pulsed laser beam across the target.
3. The method of claim 1, wherein the x/y scan pattern is executed by displacing the target
15 via an x/y displacement table upon which the target is mounted.
4. The method of claim 1, wherein the incremental angle of rotation is a non-integral divisor of 360°.
5. The method of claim 4, wherein the incremental angle of rotation is about 26.6°.
6. The method of claim 1, wherein the x/y scan pattern comprises a plurality of substantially
20 parallel, linear passes across the target.
7. An apparatus for pulsed-laser deposition comprising:
 - a laser;
 - a rotatable platform upon which a target can be mounted;

a motor couple with the platform to rotate the platform by an incremental angle of rotation;

an x/y displacement table upon which the rotatable platform is mounted;

one or more motors coupled with the x/y displacement table to displace the rotatable platform along x- and y-axes.

8. An apparatus for pulsed-laser deposition comprising:

a laser that can generate a pulsed laser beam;

a rotatable platform upon which a target can be mounted;

a motor couple with the platform to rotate the platform by an incremental angle of rotation;

means for displacing the rotatable platform and/or the pulsed laser beam to generate an x/y scan pattern of the laser pulses across the surface of the target; and

a computer-readable medium storing software code that generates sequential commands for:

a) the motor coupled with the platform to rotate the platform by an angular increment and stop; and

b) the means for displacing the rotatable platform and/or the pulsed laser beam to execute the x/y scan pattern while the rotation of the platform is stopped.